

EFFECTS OF CLIMATE CHANGE AND PRICE ON CROP DIVERSIFICATION IN TEA PLANTATIONS

A dissertation submitted to the
Faculty of Animal Science and Export Agriculture
Uva Wellassa University
In partial fulfillment of the requirements for the award of
Bachelor of Science in Export Agriculture

By
ADIKARI MUDIYANSELAGE POORNIMA

**Export Agriculture Degree Programme
Faculty of Animal Science and Export Agriculture
Uva Wellassa University of Sri Lanka**

2021

ABSTRACT

The plantation sector, particularly tea, is an important sector of Sri Lanka's economy, serving as the main source of foreign exchange and employment. However, climate change and low profitability have adversely affected the sector affecting its sustainability, and economic viability. Therefore, the tea industry requires appropriate adaptation strategies to cope with ongoing climate change and low profitability. Though crop diversification has long been proposed as an adaptive strategy for combatting climate change and low profitability, it is clear from the literature that complete transformative change against climate change and price volatility is extremely challenging for tea plantations due to conspicuous differences between annual and perennial crops. As far as literature is concerned and to the best of our knowledge, no study has been conducted on the effects of climate change and price on crop diversification in tea plantations. This paper, therefore, was carried out to contribute to the literature by analyzing the effects of climate change and price on crop diversification based on the secondary data set, that is, monthly panel data from 49 tea estates representing all the tea growing regions in Sri Lanka from 2004 to 2018. In doing so, Crop Diversification Index and Heckman's two-stage model were employed as the apparatus for empirical analysis. The mean Crop Diversification Index value shows that Sri Lanka's tea estates were not very diverse. Results from Heckman's two-stage model show that climate variables have a statistically significant association with crop diversification in tea plantations, indicating the influence of climate variability on crop diversification. Results further show that the price of tea has a positive influence in deciding to diversify. Moreover, the analysis revealed that the real price of rubber, tea yield, elevation, field labor, and cropping area has a significant influence on crop diversification decision, whereas the only latter three variables affect the level of diversification. In particular, in Sri Lanka, temperature variability and elevation are the key influential factors in the adoption of diversification in tea plantations.

Keywords: Climate change, Price, Tea industry, Crop diversification, Crop Diversification Index (CDI), Heckman's two-stage model